Planning a tactical multichannel

by Maj. Chuck Rodriguez

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The rocket attack

Should one tactical multichannel shelter become disabled during hostilities, a resourceful Signal battalion with a little ingenuity should be able to continue to provide communication support for the division. It even might be able to devise a way to keep the combat commanders talking if the division loses two or three tactical multichannel shelters. But what happens when the main Signal site suffers a rocket attack and almost one third of the Signal battalion's multichannel assets are suddenly not functional? Will the division's tactical multichannel network have suffered too severe a blow to be of any further use?

As the network is currently organized, the answer is probably yes. However, that is largely because too many command and control systems and circuits are routed through the main Signal site. It just might be that if we based our divisional multichannel network on the operational needs of the principal tactical users, rather than on our battalion's TO&E or a templated arrangement taught out of a textbook, then one rocket attack would not necessarily reduce the Signal battalion's multichannel operations to confusion.

Survivability is what we must build into the entire multichannel network. Fortunately, when we apply the concept of alternate circuit routing and multiple system paths, we are half-way assured of system survivability. What is wrong with the present way of networking is that we use the main Signal site as a convenient-to-manage nerve center for nearly all critical circuit paths. Placing so much of our equipment at and routing so many of our circuits through the main Signal site may be convenient, but it offers the enemy a target-rich environment. The other half of the solution is to *correctly* disperse our multichannel assets and their operational control in order to best support the combat commanders who are busy managing the division's battle efforts.

In the same way that distributed data processing makes a computer network more versatile and less subject to a catastrophic "crash," greater allocation of the divisional multichannel assets and their control away from the main Signal site will make the network more survivable and resilient to rocket attack. However, this re-allocation should be done in a radically different way than what we are accustomed to doing.

For years, the Signal School has instructed our officers and NCOs in the approved way to design a divisional multichannel network with a neatly arranged template based on the concept of a "command" and a separate but interlocking "area" system. As a theoretical solution or for a battlefield situation with cooperating geography in which we have all our multichannel assets, this template works out quite well. But remove a third of your rigs that were located at the main Signal site and what do we have left? How are our Signal students supposed to react to this rocket attack situation? Unless we help them to think beyond the template, we might have some very unimaginative C-E leaders when we most need their mental resourcefulness.

Borrowing from a marketing concept

Marketing has provided American industry with some valuable concepts. A fundamental marketing concern is to place the needs of the consumer first. If this concept were to be applied to tactical multichannel planning, we would have to ask ourselves what our subscribers need. The commanding general probably wants to control the battle from the *d*ivision *tac*tical operations center (DTAC). That

network for users

means he needs to be able to talk with his brigade commanders and any other task force commander he sends far forward. The chief of staff needs to keep the *d*ivision main *t*actical *o*perations *c*enter (DTOC) in contact with the DTAC. The next most important communication link is between the DTAC and the artillery commander at DIVARTY, the division's alternate command location. Finally, in order to make the network more versatile, all these critical nodes must connect with each other, the forward area Signal centers (offering area support), DISCOM, and the main Signal site.

With these needs in mind, we should build the divisional multichannel network starting at the DTAC and working toward lesser degrees of operational control. Unlike the textbook template approach of starting all Signal planning at the main Signal site, this alternative approach begins with the most important subscriber, the CG, and works toward decreasing levels of divisional command. In this way, the battlefield situation determines what our tactical multichannel network becomes. In the event of a loss due to rocket attack, our approach would be to replace lost multichannel assets with those serving the lowest priority subscribers. The relative nonavailability of spare multichannel equipment in our inventory means that we need to have a well-rehearsed contingency plan available for the day when that rocket attack on the main Signal site takes place.

Although this planning approach is rather simple, its impact would be very significant. The three sections that follow present an outline of some of the most obvious consequences to such an approach.

Training realism

Since a rocket attack is at least as likely as a site ground attack, we need to train for it. How many soldiers know how to treat the effects of burns precipitated by rocket attack? How many NCOs know how to best position their rigs on site to take advantage of natural barriers and defilades in order to protect their team members and C-E equipment from the effects of a rocket attack? At this time, not enough. We need to ensure that these skills are taught and evaluated annually during the SQT and ARTEP.

SYSCON decentralization

There are nearly 40 experienced C-E officers and senior NCOs in the division who are not in the Signal battalion. They are the Signal support leaders in combat brigades and battalions, and in combat support battalions. These brigade and battalion Signal officers and chiefs are located where the battle is taking place, and they stand ready to take on a larger role in managing that portion of the multichannel network that directly supports them.

I propose that we be prepared to selectively decentralize operational control of systems control (SYSCON), giving control to the most experienced of these Signal officers and senior NCOs who work outside the Signal battalion. I'll refer to these selected people as "sector leaders." There are many possible ways to plan for the contingency of decentralizing SYSCON's operational control. The specific procedures can be refined through trial, practice, and evaluative feedback.

One possible arrangement would be to create a working relationship between the Signal battalion's line-company commanders and the sector leaders that is similar to the relationship that already exists between HHC staff officers and the HHC company commander. In the latter case, the company commander retains responsibility for his equipment and the welfare of his soldiers, but he does not have operational control over some of them. The sector leaders would exercise this

SITE	PARENT UNIT	SECTOR LEADER (grade)
Main	A Company	A Co CDR (0-3)
DTOC	A Company	A Co CDR (0-3)
DTAC	A Company	Division Radio Off (0-3)
1 BDE TOC	B Company	1 BDE C-E (0-4/E-8)
2 BDE TOC	B Company	2 BDE C-E (0-4/E-8)
3 BDE TOC	B Company	3 BDE C-E (0-4/E-8)
AREA SIG CEN 1	B Company	B Co CDR (0-3)
AREA SIG CEN 2	B Company	B Co CDR (0-3)
AREA SIG CEN 3	C Company	C Co CDR (0-3)
RELAYS	C Company	C Co CDR (0-3)
DIVARTY	C Company	DIVARTY C-E (0-4/E-8)
DISCOM	C Company	DISCOM C-E (0-4)
TF TOC	C Company	TF C-E (0-3)

Figure 1. Proposed Signal site operational control

operational control only with the express authorization of the division Signal officer (who conveniently is also the Signal battalion commander). Such an arrangement would free the line-company commanders of the Signal battalion to more effectively support their far-flung sites, because they would have a much reduced operational control responsibility.

When you consider the distances separating the sites and the logistical demands placed on line-company commanders, it is no wonder that circuit availability is not what it could be in the tactical multichannel network. What the network needs is continuous supervision by senior communicators, like the sector leaders described above, to improve multichannel system and circuit availability. Thus, with the arrangement in Figure 1, not only would the sector leaders already be in the multichannel network and available to step in immediately should SYSCON at the main Signal site become incapacitated, but their presence would likely improve the routine operation of the network.

The operational responsibilities of lieutenants and communication chiefs at Signal Centers would remain unchanged under this arrangement. The difference is that they would be coordinating with their sector leader for operational decisions, instead of with their company commander. SYSCON would be less critical because more system and circuit management would take place forward of the main Signal site by sector leaders.

Constructing an alternative multichannel network

A suggested procedure for designing the multichannel network starts with the principal subscriber, the division commanding general, at the DTAC. Links could then be added and interconnected. As equipment and teams are taken out of action, they could be replaced by assets from the lowest priority links available. In Figure 2, the first site identified in a linked pair is the site responsible to SYSCON for reporting status and reestablishing outages.

MULTICHANNEL LINK	PRIORITY
DTAC - TD TOC (on call)	1
DTAC - lead BDE TOC	2
DTAC - supporting BDE TOC	3
DTOC - Relay A - DTAC	4
DIVARTY - DTAC	5
AREA SIG CEN 1 - DTAC	6
AREA SIG CEN 1 - reserve BDE TOC	7
DTOC - Relay B - DIVARTY	8
MAIN SIG CEN - DTOC	9
MAIN SIG CEN - DIVARTY	10
MAIN SIG CEN - AREA SIG CEN 1	11
AREA SIG CEN 2 - AREA SIG CEN 1	12
AREA SIG CEN 2 - DIVARTY	13
MAIN SIG CEN - AREA SIG CEN 2	14
AREA SIG CEN 3 - AREA SIG CEN 2	15
AREA SIG CEN 3 - MAIN SIG CEN	16
AREA SIG CEN 3 - MAIN SIG CEN 1	17
DISCOM - MAIN SIG CEN	18

Figure 2. Step-wise construction of the network

The purpose of this article has been to focus attention on how best to improve multichannel survivability, and on the importance of first serving the command and control needs of the division's commanding general. If we in the Signal Corps continue to focus on these needs, we can look forward to new initiatives in several key areas: in training to react to a rocket attack; in practicing to decentralize SYSCON's operational control; and in developing new approaches to planning our tactical multichannel networks.

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